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CONTAMINATION ASSESSMENT REPORT ADDENDUM SITE 4 UNDERGROUND
STORAGE TANK 110 (UST110) NAVAL AVIATION DEPOT NAS PENSACOLA FL
8/1/1995
ABB ENVIRONMENTAL SERVICES, INC

CONTAMINATION ASSESSMENT REPORT ADDENDUM

**SITE 4, UST 110
NAVAL AVIATION DEPOT**

**NAVAL AIR STATION
PENSACOLA, FLORIDA**

Unit Identification Code: N00204

Contract No. N62467-89-D-0317/008

Prepared by:

**ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301**

Author:

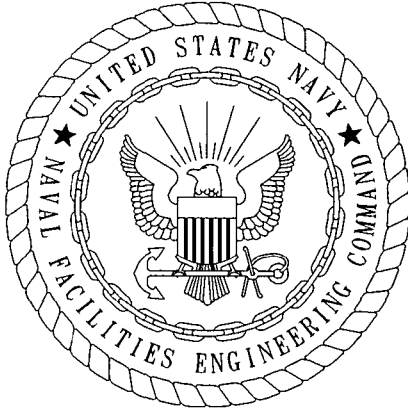
Pamela J. Wagner

Prepared for:

**Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418**

Byas Glover, Code 18410, Engineer-in-Charge

August 1995



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

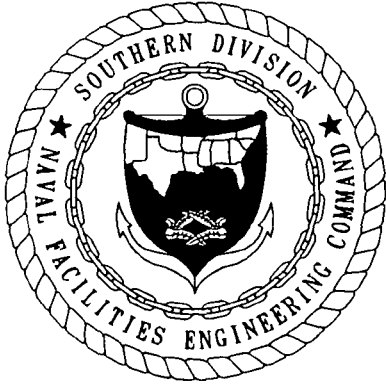
The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/008 are complete and accurate and comply with all requirements of this contract.

DATE: August 16, 1995

NAME AND TITLE OF CERTIFYING OFFICIAL: Mark Diblin, P.G.
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Michael J. Williams, P.G.
Project Technical Lead

(DFAR 252.227-7036)



FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, or disposal of hazardous materials. Through accidental spills and leaks and conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable by today's standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense (DOD) initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at their facilities.

One of these programs is the Comprehensive Long-Term Environmental Action, Navy (CLEAN) Underground Storage Tank (UST) program. This program complies with Subtitle I of the Resource Conservation and Recovery Act and the Hazardous and Solid Waste Amendments of 1984. In addition, the UST program complies with all appropriate State and local storage tank regulations as they pertain to each naval facility.

The UST program includes the following activities:

- registration and management of Navy and Marine Corps storage tank systems,
- contamination assessment planning,
- site field investigations,
- preparation of contamination assessment reports,
- remedial (corrective) action planning,
- implementation of the remedial action plans, and
- tank and pipeline closures.

The Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) manages the UST program, and the U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection (FDEP; formerly Florida Department of Environmental Regulation) oversee the Navy UST program at Naval Aviation Depot (NADEP) Pensacola.

Questions regarding the UST program at NADEP Pensacola should be addressed to Mr. Byas Glover, SOUTHNAVFACENGCOM, Code 18410, at (803) 743-0651.

ACKNOWLEDGMENTS

In preparing this report, the Underground Storage Tank Section (UST) of the Comprehensive Long-Term Environmental Action, Navy (CLEAN) Group at ABB Environmental Services, Inc. (ABB-ES), commends the support, assistance, and cooperation provided by the personnel at Naval Aviation Depot, Naval Air Station, Pensacola, Florida, and Southern Division, Naval Facilities Engineering Command.

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AVGAS	aviation gasoline
BEI	Bechtel Environmental, Inc.
bd1	below detection limits
bls	below land surface
BRAC	Base Realignment and Closure
CA	contamination assessment
CAR	Contamination Assessment Report
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-Term Environmental Action, Navy
CompQAP	Comprehensive Quality Assurance Plan
CTO	Contract Task Order
DOD	Department of Defense
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
GTES	GT Environmental Services
NA	not analyzed
NADEP	Naval Aviation Depot
NAS	Naval Air Station
ND	not detected
NFAP	No Further Action Plan
NTTC	Naval Technical Training Command
OVA	organic vapor analyzer
PAH	polynuclear aromatic hydrocarbons
ppb	parts per billion
ppm	parts per million
SOUTHNAV- FACENGCOM	Southern Division, Naval Facilities Engineering Command
TRPH	total recoverable petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOA	volatile organic aromatics
VOC	volatile organic compound
VOH	volatile organic halocarbons
yd ³	cubic yard

1.0 SITE BACKGROUND AND DESCRIPTION

Site 4 is located on the northwestern edge of Chevalier Field, Naval Aviation Depot (NADEP), Pensacola, Florida (Figure 1-1). It is the former location of a 500-gallon underground storage tank (UST) associated with the aviation gasoline (AVGAS) pipeline (Figure 1-2). The tank, designated UST 110, was situated next to Industrial Road on the east side of Building 3819. The tank was constructed of unprotected steel and installed next to a steel containment area referred to by site personnel as an "oil pit." At the time of removal, the "oil pit" contained a variety of piping, valves, and a rubber hose on a steel reel. The pit was covered with a concrete cap at the time of removal. The purpose of the pit is uncertain, although the suspected usage was to dispense lube oil and air during aircraft maintenance.

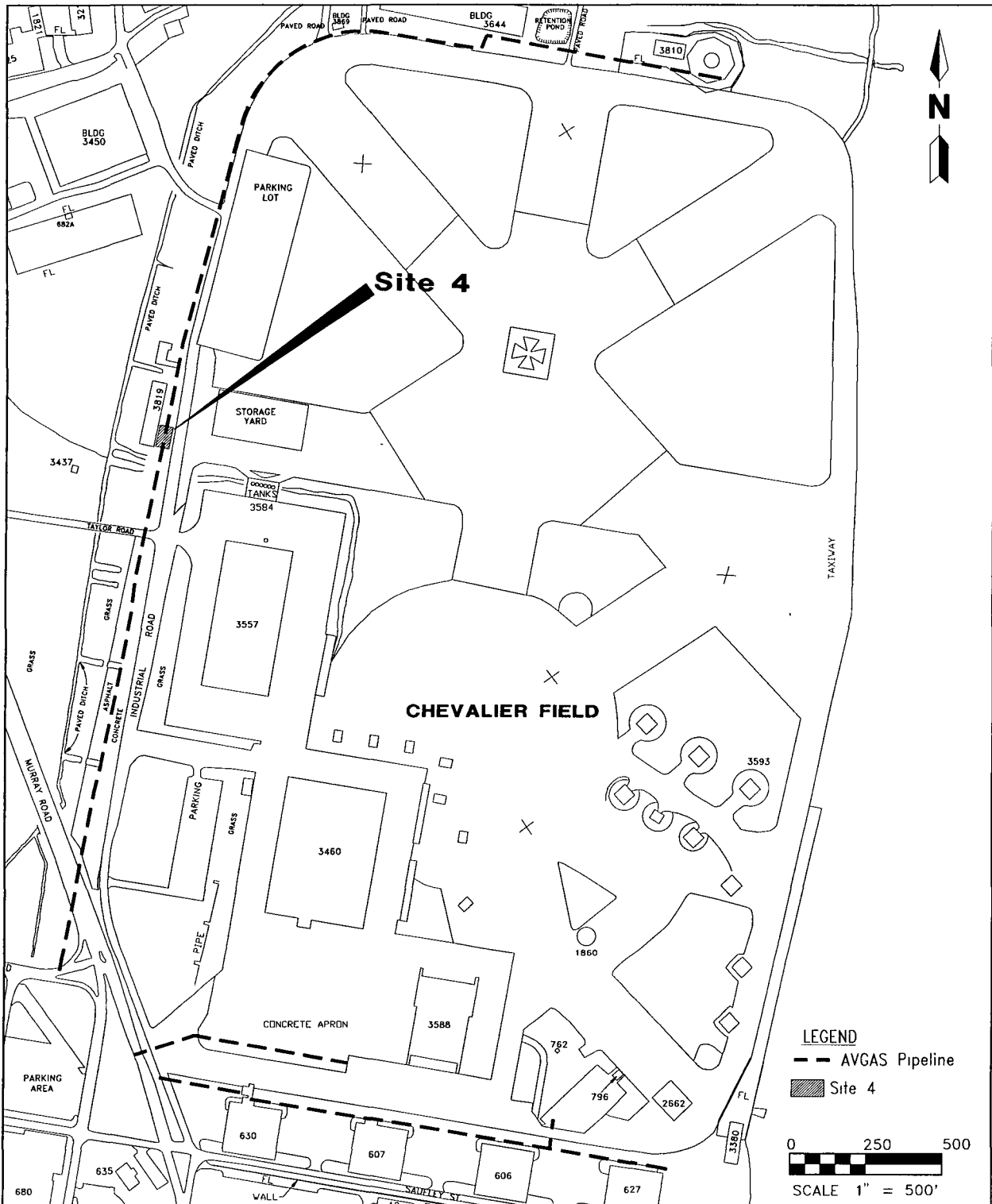
UST 110 was removed in September 1994 by Phoenix Construction Company and their subcontractor, GT Environmental Services, Inc. (GTES). During the tank removal operations a visual observation of soil contamination was reported by GTES personnel. No confirmatory samples were collected by GTES. Subsequent to the UST removal, all excavated soil was returned to the excavation. A copy of the GTES letter summarizing their findings is included in Appendix A of this report.

The UST site was transferred to ABB Environmental Services, Inc. (ABB-ES), for closure in late September 1994. The closure report for UST 110 is presented in Appendix A of the AVGAS Pipeline Area Contamination Assessment Report (CAR) submitted by ABB-ES in August 1995. Because visual observation of soil contamination had been reported, a Discharge Reporting Form was filed with the closure report. The Discharge Reporting Form is also included in Appendix A of the August 1995 AVGAS Pipeline CAR.

In January 1995, the demolition of Chevalier Field commenced. The airfield and many of its associated facilities are being demolished as part of the Base Realignment and Closure (BRAC) program. A Naval Technical Training Center (NTTC) is being constructed on the former airfield. Figure 1-3 presents a map of the future facilities at NTTC in the Site 4 area.

As a result of BRAC construction, Site 4 underwent drastic changes during the course of this investigation, including the addition of enough fill dirt to raise the elevation three to four feet above the former site elevation. The maps included in this report present the Site 4 area as it was prior to demolition and construction. Changes occurring in the site area that affected the investigation are discussed in the text of this report.

This report summarizes the data gathered during the Site 4 UST 110 closure and preliminary contamination assessment (CA). General information such as regional and local physiography, regional hydrology, investigative methodologies, and procedures are included in the August 1995 AVGAS Pipeline Area CAR.



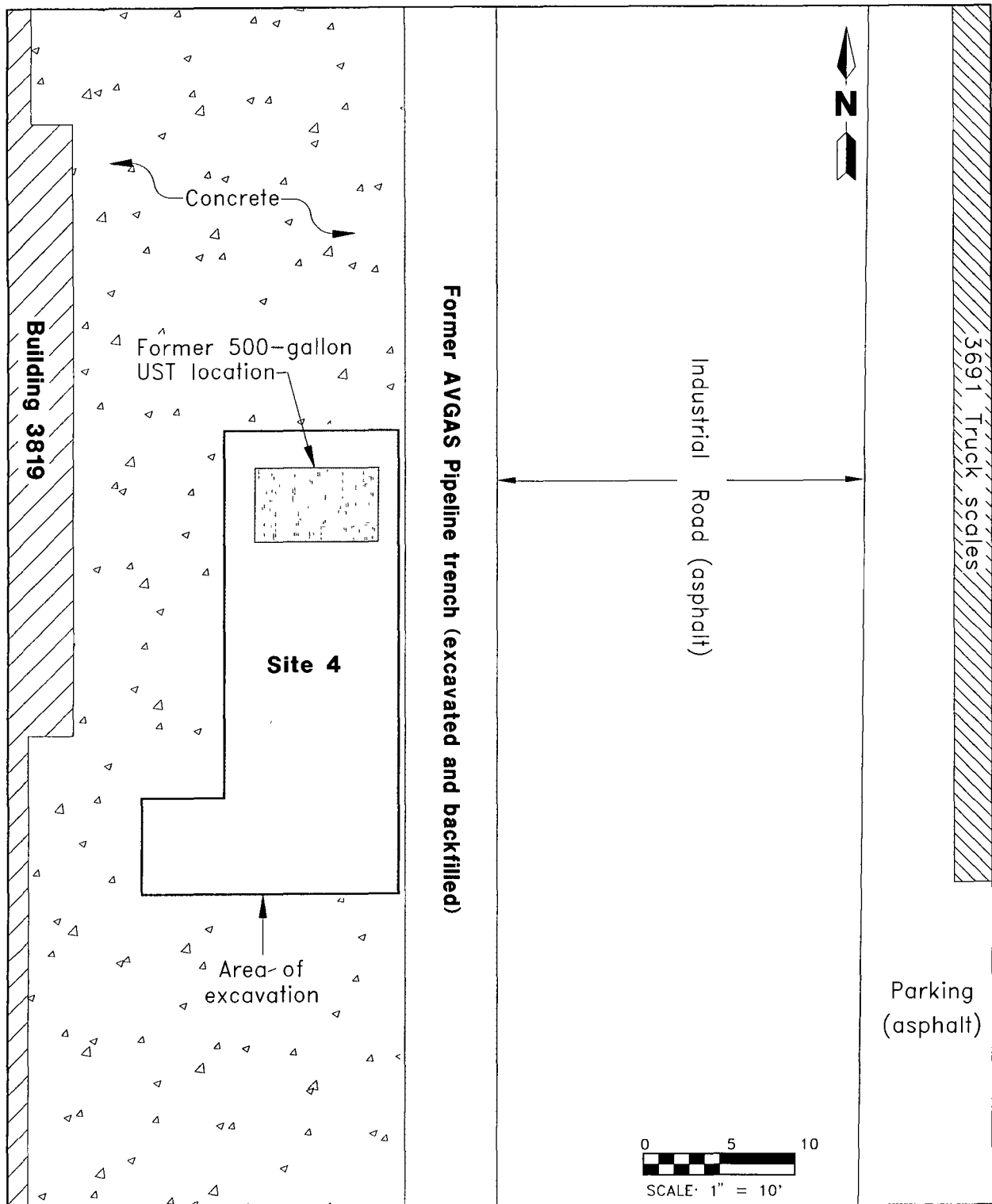
**FIGURE 1-1
SITE LOCATION MAP**



**CONTAMINATION ASSESSMENT
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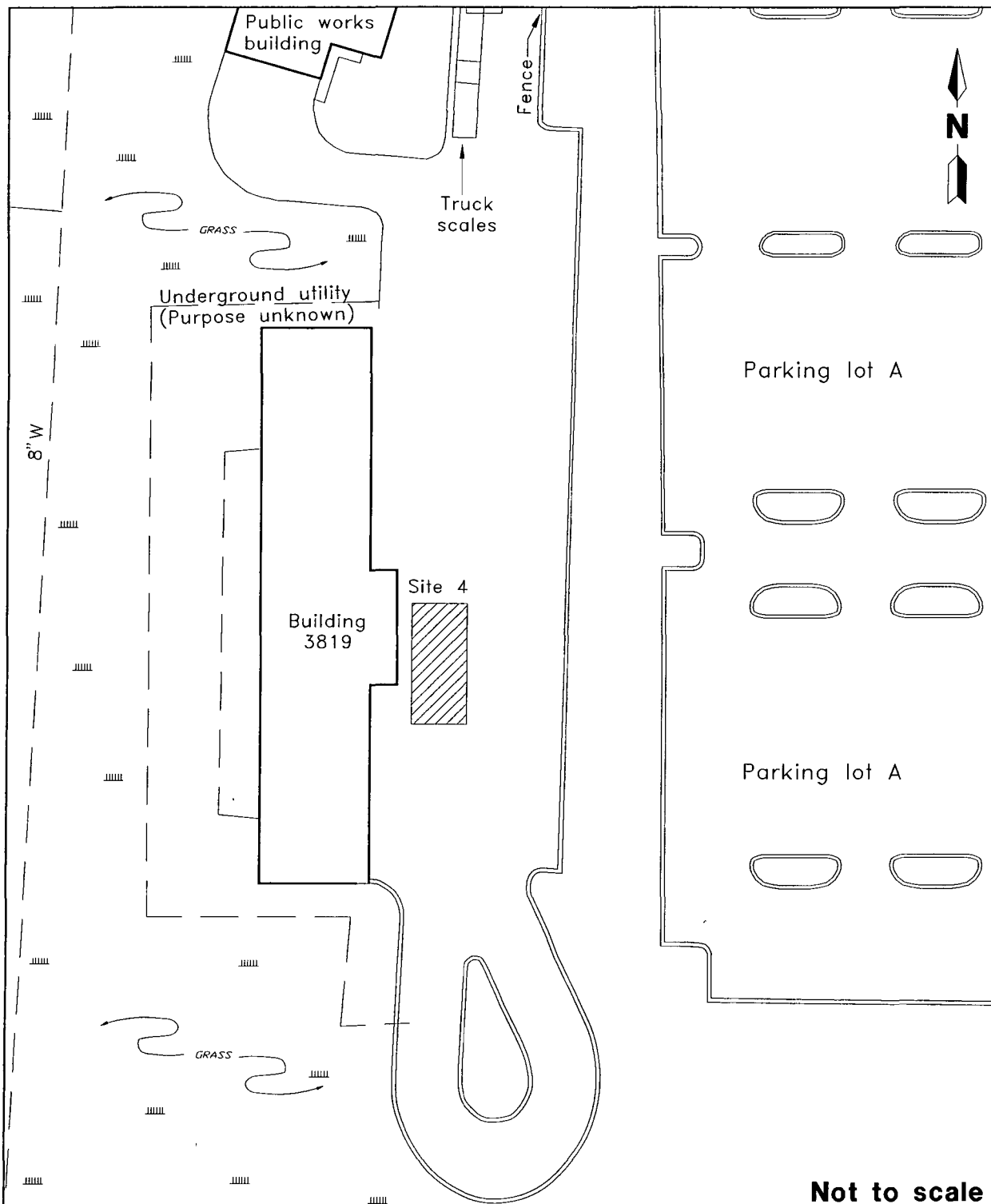
**FIGURE 1-2
SITE PLAN
FEBRUARY 1995**

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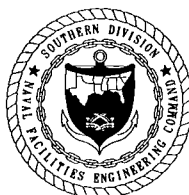
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**FIGURE 1-3
SITE PLAN, JUNE 1995,
POST BRAC CONSTRUCTION**

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**CONTAMINATION ASSESSMENT
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2.0 CONTAMINATION ASSESSMENT RESULTS

2.1 SOIL ASSESSMENT RESULTS. All laboratory analytical soil samples were collected in accordance with ABB-ES' approved Comprehensive Quality Assurance Plan (CompQAP) using a hand-operated auger. Samples were placed in the appropriate containers, labeled, packed in ice, and shipped by overnight carrier to Quanterra Environmental Services in Tampa, Florida, for analysis.

2.1.1 Initial Soil Assessment On October 11, 1994, ABB-ES personnel advanced eight soil borings (04B001 through 04B008) around the perimeter of the UST excavation area with a stainless steel hand-operated auger. The purpose of these borings was to gather lithologic information and visually inspect the soil around the excavation for contamination. Additionally, one soil sample was collected from each soil boring for organic vapor analyzer (OVA) headspace analysis. Table 2-1 summarizes the data collected from these soil borings. Figure 2-1 presents the lithologic soil boring locations and OVA screening results. Lithologic logs are presented in Appendix B of this report.

Visual inspection revealed a layer of an unidentified black creamy substance approximately 2 inches thick in soil boring 04B004 at 2 feet below land surface (bls). Three additional soil borings, 04B006 through 04B008, were advanced around 04B004 to estimate the lateral extent of this layer. Two black layers, each less than ½-inch thick, were present in soil boring 04B008 at 2 feet bls. The black layer was not observed in any other soil boring. Two samples of this material, 04B00401 collected from 04B004 and 04B00801 collected from 04B008, were packed on ice and shipped to Quanterra Environmental Services for analysis by United States Environmental Protection Agency (USEPA) Method 418.1, for total recoverable petroleum hydrocarbons (TRPH). A TRPH concentration of 17.3 parts per million (ppm) was detected in sample 04B00401. The TRPH concentration detected in sample 04B00801 was below method detection limits. The laboratory data sheets for these and all other soil samples are presented in Appendix C of this report.

No soil staining was observed in any soil boring. OVA results from the eight soil borings indicated no volatile organic compound (VOC) concentrations greater than 3 ppm.

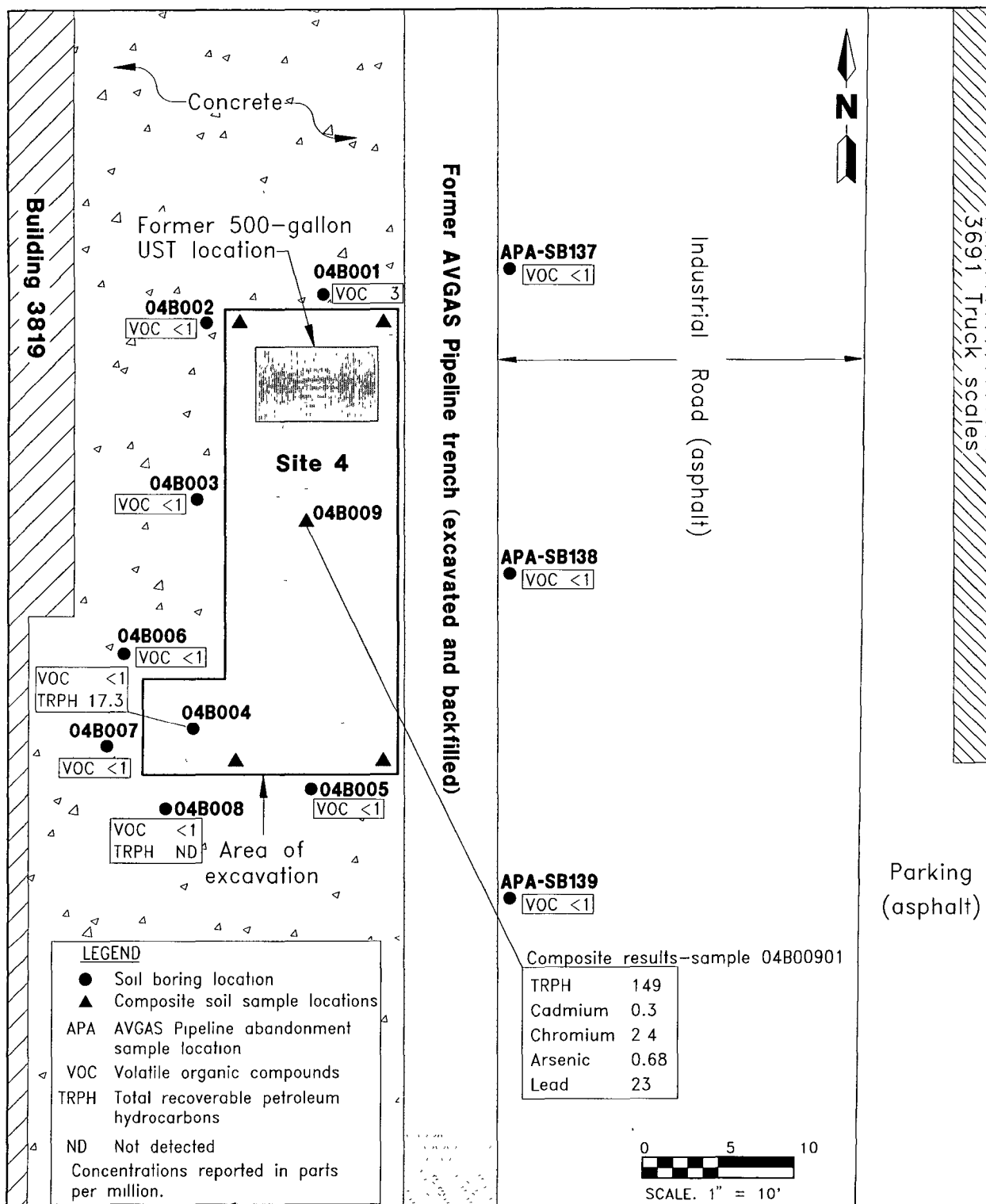
On October 26, 1994, a composite soil sample, 04B00901, was collected from the soil which had been returned to the Site 4 excavation area during the UST removal in September 1994. This sample was composited from five aliquots collected from each corner and the center of the UST excavation area from 1.5 to 2 feet bls. Soil sample 04B00901 was analyzed for total metals, volatile organics, extractable organics, and TRPH in accordance with the Used Oil analytical group criteria described in Chapter 62-770.600(8) Florida Administrative Code (FAC). Figure 2-1 presents the composite soil sampling locations and the analytical results of 04B00901.

Volatile organic aromatic (VOA) and polynuclear aromatic hydrocarbon (PAH) concentrations were below method detection limits for soil sample 04B00901. The detection limits for the PAHs were elevated to 1,700 parts per billion (ppb), however, due to matrix interference. A TRPH concentration of 149 ppm was detected in the soil sample. Although PAH and VOA concentrations were below detection limits, the PAH detection limits were elevated and a TRPH clean soil

**Table 2-1
Summary of Lithologic Soil Boring Data,
September 1994**

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Soil Boring Designation	Sample Depth (feet bls)	Unfiltered OVA Reading ¹ (ppm)	Physical Observations
04B001	0.5 to 1.0	3	No staining, no petroleum odor
04B002	0.3 to 0.8	<1	No staining, no petroleum odor
04B003	0.5 to 1.0	<1	No staining, no petroleum odor
04B004	0.5 to 1.0	<1	Black staining with "greasy" texture, no petroleum odor, collected TRPH sample: 17.3 ppm
04B005	0.5 to 1.0	<1	No staining, no petroleum odor
04B006	1.0 to 1.5	<1	No staining, no petroleum odor
04B007	0.5 to 1.0	<1	No staining, no petroleum odor
04B008	1.0 to 1.5	<1	Black staining with "greasy" texture, no petroleum odor, collected TRPH sample: below detection limits
¹ Filtered readings were not taken due to the very low volatile concentrations encountered at the sites. Notes: bls = below land surface. OVA = organic vapor analyzer. ppm = parts per million. TRPH = total recoverable petroleum hydrocarbons.			



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maximum concentration of 10 ppm was applied according to Chapter 62-775.400 FAC. Cadmium, chromium, arsenic, and lead concentrations were below their respective State maximum concentrations.

On January 23, 1995, excessively contaminated soil from the former location of UST 110 was removed by Bechtel Environmental, Inc. (BEI). The excavation area is shown on Figure 1-2. Approximately 31 cubic yards (yd³) of soil were removed from an area approximately 30 feet by 11 feet. Excavation continued until the water table was reached at 2.5 feet bls. The soil removed from the site primarily consisted of fine-grained, well sorted sand, ranging in color from very pale orange to moderate reddish orange. ABB-ES personnel present during the excavation reported no stained soil. Two layers of the black substance previously discussed were present in the southern section of the excavation near boring locations 04B007 and 04B008. The layers were present at 2 feet bls and each layer was less than ½-inch thick. BEI was unable to continue excavating on the west wall due the proximity of Building 3819.

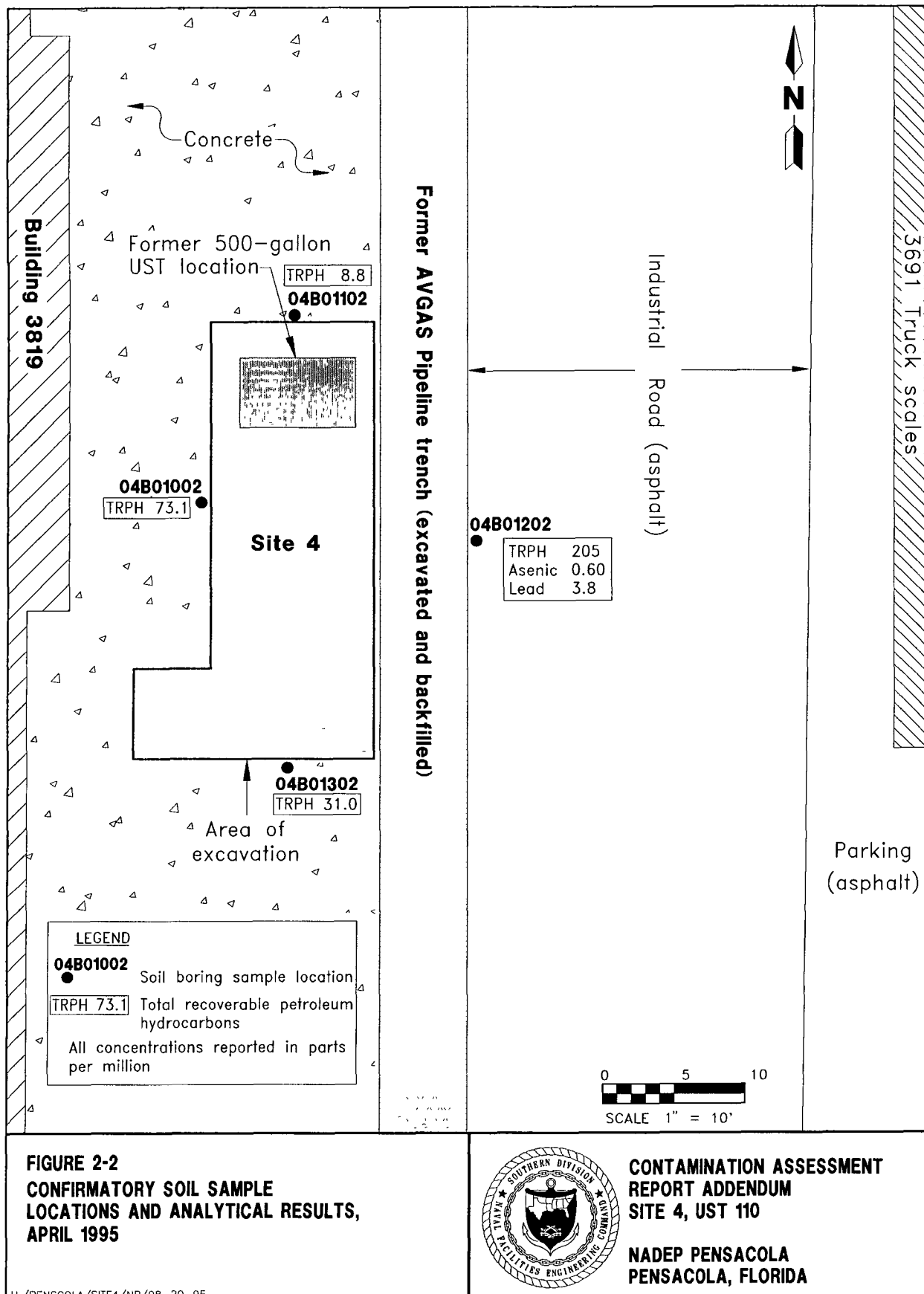
Site 4 soil was stockpiled with soil excavated from other lube-oil USTs during BEI excavation activities at Chevalier Field. In May 1995, the stockpiled soil was removed from the base and taken to a thermal treatment facility. Contaminated soil transportation manifests were included in the Initial Remedial Action Summary Letter submitted to the Florida Department of Environmental Protection by ABB-ES on June 2, 1995.

2.1.2 Confirmatory Soil Assessment On April 11, 1995, four confirmatory soil samples, 04B01002 through 04B01302, were collected from soil boring locations 04B010 through 04B013, respectively. These soil samples were collected from 1.0 foot bls. All four samples were analyzed for TRPH, arsenic, cadmium, chromium, and lead, according to Chapter 62-770.600 FAC. Table 2-2 summarizes the confirmatory sampling results. Figure 2-2 presents confirmatory sample locations and laboratory analytical results.

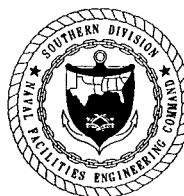
TRPH was detected in all four soil samples. TRPH concentrations detected in soil samples 04B01002 (73.1 ppm), 04B01202 (205 ppm), and 04B01302 (31.0 ppm) exceeded the State clean soil maximum concentration of 10 ppm for TRPH. No cadmium, chromium, arsenic, or lead concentrations detected in any soil sample exceeded State clean soil maximum concentrations.

At the time these soil samples were collected, BRAC construction was underway in the Site 4 area. All concrete around Building 3819 had been removed in March 1995. Also, Industrial Road had been demolished by removing the asphalt surface and grinding up the asphalt sub-base material. The asphalt sub-base material had been mixed into the surrounding soil and spread approximately 1 foot deep over the entire site area. The demolition and construction activities and high water table conditions (about 6 inches above previous observations) in April 1995 made it impossible to collect dry, asphalt-free soil samples that were representative of site conditions.

2.2 GROUNDWATER ASSESSMENT RESULTS. Two monitoring wells were installed in the Site 4 source area. On January 23, 1995, one temporary monitoring well, 04Z001, was installed to a depth of 4.5 feet bls. On February 4, 1995, one permanent monitoring well, 04G001, was installed to replace the temporary well. Groundwater samples from monitoring wells 04Z001 and 04G001 were collected on



**FIGURE 2-2
CONFIRMATORY SOIL SAMPLE
LOCATIONS AND ANALYTICAL RESULTS,
APRIL 1995**



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January 23, 1995, and March 20, 1995, respectively, in accordance with ABB-ES' approved CompQAP using an extruded Teflon™ bailer. Samples were placed in the appropriate containers, labeled, packed in ice, and shipped by overnight carrier to Quanterra Environmental Services in Tampa, Florida, for analysis. Laboratory data sheets are presented in Appendix D of this report. Figure 2-3 presents monitoring well locations and sampling results. Table 2-3 presents the laboratory results for each monitoring well.

2.2.1 Temporary Monitoring Well Results On January 23, 1995, ABB-ES personnel collected groundwater sample 04Z00101 from temporary monitoring well 04Z001 immediately after development. The temporary well was removed on the same day. Groundwater sample 04Z00101 was analyzed for Used Oil analytical group parameters in accordance with Chapter 62-770.600 FAC.

No volatile, semivolatile, or PAH concentrations above method detection limits were detected in groundwater sample 04Z00101. The arsenic concentration detected in the groundwater sample was 14.9 ppb. The State drinking water standard for arsenic is 50 ppb. The lead concentration detected in groundwater sample 04Z00101 was 87.8 ppb. The State target level for lead is 50 ppb. One tentatively identified compound (TIC), biphenyl, was detected at a concentration of 13 ppb. No other contaminants were detected.

2.2.2 Permanent Monitoring Well Results Permanent monitoring well 04G001 was installed to reduce suspended sediments which were prevalent in the temporary well. On March 20, 1995, groundwater sample 04G00101 was collected from the permanent well and analyzed for arsenic, cadmium, chromium, and lead. Lead was the only contaminant detected in the sample. The lead concentration detected, 6.0 ppb, was well below the State target level. Monitoring well 04G001 was abandoned on the same day due to BRAC construction activities.

Table 2-3
Summary of Groundwater Analytical Results
March 29, 1995

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Pensacola, Florida

Contaminant	04Z00101	04G00101	State Target Level
Volatile Organic Aromatics (VOA). Reported in parts per billion (ppb).			
Benzene	< 1.0	NA	1
Total VOA	< 4.0	NA	50
Semi-Volatile Organic Compounds. Reported in ppb.			
Total PAH	< 10	NA	100
Total Recoverable Petroleum Hydrocarbons (TRPH). Reported in parts per million (ppm).			
TRPH	< 1.0	NA	5
Total Metals. Reported in ppb.			
Arsenic	14.9	< 5.0	¹ 50
Cadmium	< 5.0	< 5.0	¹ 10
Chromium	< 50.0	< 50.0	¹ 50
Lead	87.8	6.0	50
¹ Florida primary drinking water standard: Chapter 62-550 Florida Administrative Code.			
Notes: Total VOA = the sum concentration of benzene, toluene, ethylbenzene, and xylenes. PAH = polynuclear aromatic hydrocarbons. NA = not analyzed.			

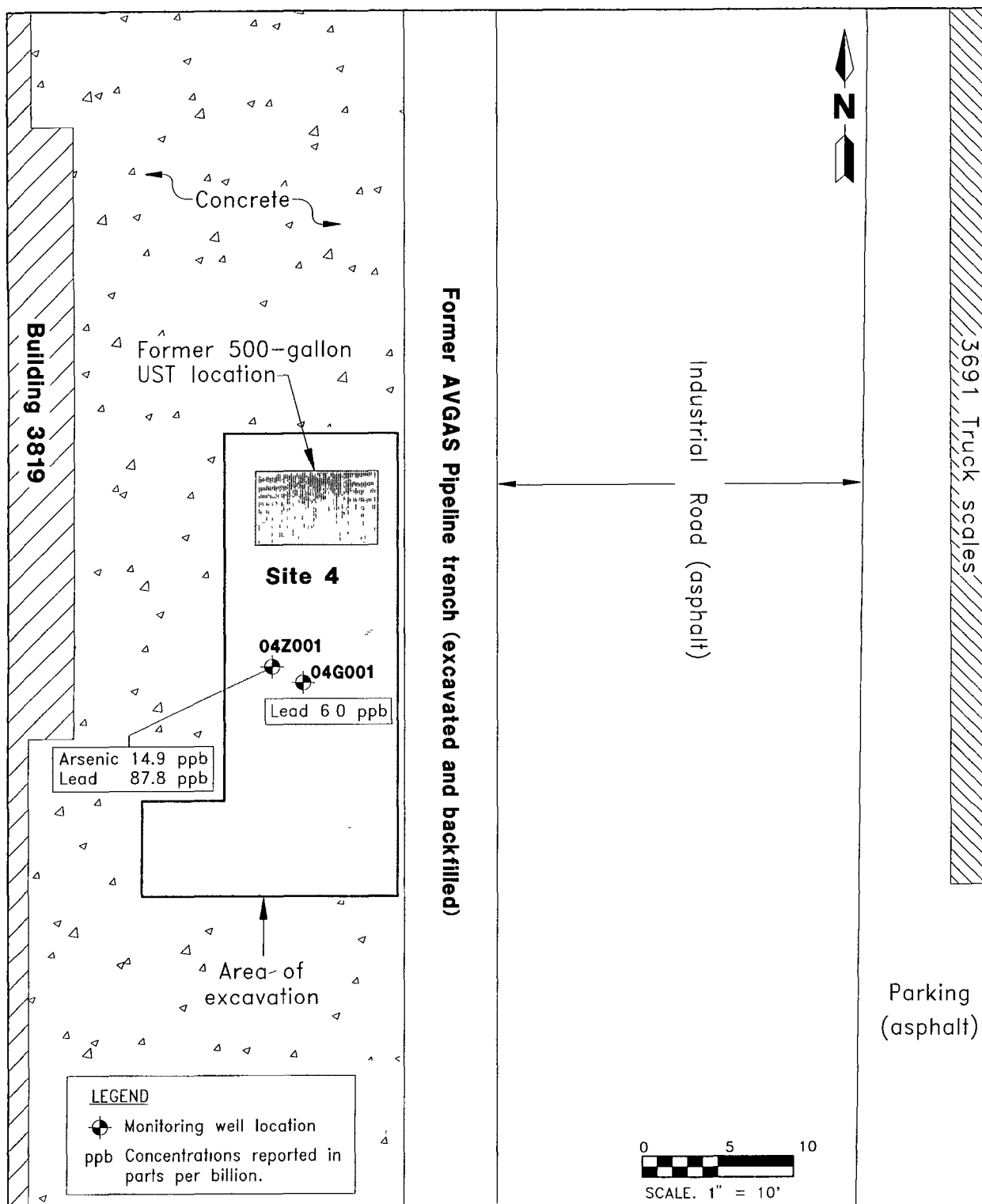


FIGURE 2-3
MONITORING WELL LOCATION MAP
AND GROUNDWATER SAMPLE ANALYTICAL
RESULTS, JANUARY 23 AND MARCH 20, 1995

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3.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

3.1 SUMMARY. Based on the findings of the CA field investigations and laboratory analytical results, the following is a summary of existing conditions at the site.

- Site soil consists of fine-grained, well sorted sand. The color of the soil ranges from very pale orange to moderate reddish orange.
- The source of contamination, the UST, has been removed.
- The site is entirely covered by asphalt which precludes infiltration of surface runoff or rainfall.
- Excessively contaminated soil from the tank excavation area was removed.
- Laboratory analytical soil sampling results for arsenic, cadmium, chromium, and lead did not exceed State clean soil maximum concentrations.
- Laboratory analytical soil sampling results for TRPH exceeded the State clean soil maximum concentrations in three of four confirmatory soil samples.
- The analytical results of the source area groundwater samples indicated no petroleum constituents present in the groundwater. Lead was detected in the temporary well at a concentration of 87.8 ppb, which was attributed to suspended sediments. A permanent well was installed and sampled. The lead concentration in the permanent well was 6.0 ppb. No other contaminant exceeded State target levels in either sampling event.

3.2 CONCLUSIONS. Based on the findings of the CA and site conditions, the following can be concluded.

- All visually contaminated soil was removed from the excavation except in the vicinity of sample location 04B008. Excessively contaminated soil detected in the vicinity of sample locations 04B009 and 04B004 was removed.
- Stained soil at location 04B008 was sampled and analyzed for TRPH. TRPH concentrations were below method detection limits in the sample.
- Three confirmatory soil samples collected after the UST excavation were contaminated by TRPH, which may be due to the BRAC construction activities. These soil samples may not be representative of Site 4 soil because the soil has been mixed with asphalt and other construction materials. The high TRPH values are probably a result of the asphalt sub-base material in the soil.
- Groundwater at Site 4 has not been impacted by the soil contamination detected during this investigation.

- The site is not entirely covered by asphalt which will preclude infiltration of surface water and exposure to the soil beneath the site.

3.3 RECOMMENDATIONS. Based on the findings, conclusions, and interpretations of the CA, ABB-ES recommends a *No Further Action Proposal* (NFAP) for Site 4.

4.0 PROFESSIONAL REVIEW CERTIFICATION

This CAR addendum was prepared under the supervision of a professional geologist registered in the State of Florida using sound hydrogeologic principles and professional judgment. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report or referenced in public literature. Recommendations are based upon interpretations of the applicable regulatory requirements, guidelines, and relevant issues discussed with regulatory personnel during the site investigation. If conditions that differ from those described are determined to exist, the undersigned geologist should be notified to evaluate the effects of any additional information on this assessment or the recommendations made in this report. This CAR addendum was developed for Site 4-UST 110 at NADEP, NAS Pensacola, Florida, and should not be construed to apply to any other site.

Michael J. Williams
Professional Geologist
P.G. No. 344

Date

REFERENCES

Florida Department of Environmental Regulation, May 1994, Guidelines for Assessment and Remediation of Petroleum Contaminated Soil, Division of Waste Management.

Florida Department of Transportation, 1982; Florida official transportation map.

APPENDIX A
GTES CORRESPONDENCE



GT Environmental Services, Inc.

One Purlieu Place, Suite 205 • Winter Park, FL 32792 • 407/671-0125 • Fax: 407/671-2705

NAS Pensacola / Chevalier Field
Closure Assessment / October 17, 1994
GT Environmental Services, Inc

Tanks 130, 138, 140, 143 had no visual contamination. Analytical was run for lead and TRPH. Contamination was detected on all the above tanks .


Tanks Removed	Contaminated	Method of Detection
#104	Soil/Groundwater	Visual
#107	Soil/Groundwater	Visual
#110	Soil	Visual
#116	Soil	Visual
#119	Soil/Groundwater	Visual
#122	Soil	Visual
#130	Soil	TPH 57 PPM Analytical
#134	Galv.Tank Soil	Visual
#136		Visual
#138	Soil	TPH 540 PPM Analytical
#140		TPH 650 PPM; Lead 10PPM Analytical
#143	Soil	TPH 49 PPM Analytical

Note: Soil Samples were taken at points where visual contamination appeared.
(Where no visual contamination appeared samples were taken from the ends and middle of soil from underground tanks)


Note: GT Environmental Services, Inc. used an HNU P.I.D. on all tank soil. Due to the heavy oil, the P.I.D. did not pick up any volatiles. We referred to the visual detection as required by the Florida Guidelines for Contamination Assessment for Oil Tanks.

APPENDIX B
LITHOLOGIC LOGS



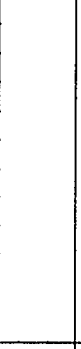
TITLE: NADEP PENSACOLA		LOG of WELL: NA		BORING NO. 04B001	
CLIENT: SOUTHDI VNAV FACENGCOM				PROJECT NO: 07527.54	
CONTRACTOR: Southern Waste Services			DATE STARTED: 10/11/94		COMPLTD: 10/11/94
METHOD: Hand Auger		CASE SIZE: NA	SCREEN INT.: NA		PROTECTION LEVEL: D
TOC ELEV.: NA FT.		MONITOR INST.: OVA	TOT DPTH: 2 FT.		DPTH TO ∇ 2.0 FT.
LOGGED BY: P. Wagner and J. Ullo		WELL DEVELOPMENT DATE: NA			SITE: Site 4-UST 110

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Concrete.				
1					SAND, fine-grained, well sorted, very pale orange, dry to wet.		SP		
2									
3									
4									




TITLE: NADEP PENSACOLA		LOG of WELL: NA		BORING NO. 04B002	
CLIENT: SOUTHDIIVNAVFACENGCOM				PROJECT NO: 07527.54	
CONTRACTOR: Southern Waste Services			DATE STARTED: 10/11/94		COMPLTD: 10/11/94
METHOD: Hand Auger		CASE SIZE: NA		SCREEN INT.: NA	
TOC ELEV.: NA FT.		MONITOR INST.: OVA		TOT DPTH: 2FT.	
LOGGED BY: P. Wagner and J. Ullo		WELL DEVELOPMENT DATE: NA			SITE: Site 4-UST 110

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Concrete.				
1					SAND, fine-grained, well sorted, very pale orange to grayish orange, dry to wet.		SP		
2									
3									
4									


TITLE: NADEP PENSACOLA		LOG of WELL: NA		BORING NO. 04B003	
CLIENT: SOUTHDIIVNAVFACENGCOM				PROJECT NO: 07527.54	
CONTRACTOR: Southern Waste Services			DATE STARTED: 10/11/94		COMPLTD: 10/11/94
METHOD: Hand Auger		CASE SIZE: NA		SCREEN INT.: NA	
TOC ELEV.: NA FT.		MONITOR INST.: OVA		PROTECTION LEVEL: D	
LOGGED BY: P. Wagner and J. Ullo		TOT DPTH: 2 FT.		DPTH TO ∇ 2.0 FT.	
WELL DEVELOPMENT DATE: NA			SITE: Site 4-UST 110		


DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Concrete.				
					CLAYEY SAND clay to fine-grained sand, 25 to 30% clay, poorly sorted, moderate reddish brown, dry.		SC		
1							SP		
					SAND. fine-grained, well sorted, mottled moderate reddish brown and moderate reddish orange, damp to wet.				
2									
3									
4									

TITLE: NADEP PENSACOLA		LOG of WELL: NA		BORING NO. 04B004	
CLIENT: SOUTHDIIVNAVFACENGCOM				PROJECT NO: 07527.54	
CONTRACTOR: Southern Waste Services			DATE STARTED: 10/11/94		COMPLTD: 10/11/94
METHOD: Hand Auger		CASE SIZE: NA		SCREEN INT.: NA	
TOC ELEV.: NA FT.		MONITOR INST.: OVA		TOT DPTH: 2 FT.	
LOGGED BY: P. Wagner and J. Ullo		WELL DEVELOPMENT DATE: NA			SITE: Site 4-UST 110


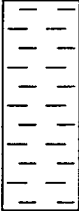

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Concrete.				
1					CLAYEY SAND clay to fine-grained sand, 25 to 30% clay, poorly sorted, moderate reddish brown, dry.		SC		
					SAND. fine-grained, well sorted, mottled moderate reddish brown and moderate reddish orange with a layer of black odorless greasy material at 2' bls.		SP		
2									
3									
4									

TITLE: NADEP PENSACOLA		LOG of WELL: NA		BORING NO. 04B005	
CLIENT: SOUTHDIIVNAVACENGCOM				PROJECT NO: 07527.54	
CONTRACTOR: Southern Waste Services			DATE STARTED: 10/11/94		COMPLTD: 10/11/94
METHOD: Hand Auger		CASE SIZE: NA		SCREEN INT.: NA	
TOC ELEV.: NA FT.		MONITOR INST.: OVA		TOT DPTH: 2FT.	
LOGGED BY: P. Wagner and J. Ullo		WELL DEVELOPMENT DATE: NA			SITE: Site 4-UST 110


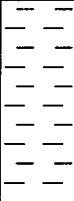

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Concrete.				
					SAND fine-grained, well sorted, light brown to very pale orange		SP		
1									
					SAND. fine-grained, well sorted, dusky yellowish brown to pale brown, damp to wet				
2									
3									
4									

TITLE: NADEP PENSACOLA				LOG of WELL: NA		BORING NO. 04B008			
CLIENT: SOUTHDIIVNAVAFACENGCOM						PROJECT NO: 07527.54			
CONTRACTOR: Southern Waste Services				DATE STARTED: 10/11/94		COMPLTD: 10/11/94			
METHOD: Hand Auger		CASE SIZE: NA		SCREEN INT.: NA		PROTECTION LEVEL: D			
TOC ELEV.: NA FT.		MONITOR INST.: OVA		TOT DPTH: 1.5FT.		DPTH TO ∇ 1.5 FT.			
LOGGED BY: P. Wagner and J. Ullo		WELL DEVELOPMENT DATE: NA				SITE: Site 4-UST 110			
DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1					Concrete.				
					SAND. fine- to medium-grained, well sorted, very pale orange to pale yellowish brown, damp.			SP	
					SAND. fine- to medium-grained, well sorted, pale yellowish brown to dark yellowish brown, damp to wet.				
2									
3									
4									

TITLE: NADEP PENSACOLA		LOG of WELL: NA		BORING NO. 04B007	
CLIENT: SOUTHDIIVNAVFACENGCOM				PROJECT NO: 07527.54	
CONTRACTOR: Southern Waste Services			DATE STARTED: 10/11/94		COMPLTD: 10/11/94
METHOD: Hand Auger		CASE SIZE: NA		SCREEN INT.: NA	
TOC ELEV.: NA FT.		MONITOR INST.: OVA		PROTECTION LEVEL: D	
LOGGED BY: P. Wagner and J. Ullo		TOT DPTH: 2.0 FT.		DPH TO ∇ 2.0 FT.	
WELL DEVELOPMENT DATE: NA			SITE: Site 4-UST 110		

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Concrete.				
1					CLAYEY SAND 15% clay, very fine- to fine-grained sand, poor sort, moderate reddish brown, dry.		SC		
					SAND, fine-grained, well sorted, dark yellowish brown, damp to wet.		SP		
2									
3									
4									

TITLE: NADEP PENSACOLA		LOG of WELL: NA	BORING NO. 04B008
CLIENT: SOUTH OIVNAVFACENGCOM			PROJECT NO: 07527.54
CONTRACTOR: Southern Waste Services		DATE STARTED: 10/11/94	COMPLTD: 10/11/94
METHOD: Hand Auger	CASE SIZE: NA	SCREEN INT.: NA	PROTECTION LEVEL: D
TOC ELEV.: NA FT.	MONITOR INST.: OVA	TOT DPTH: 2.0 FT.	DPTH TO ∇ 2.0 FT.
LOGGED BY: P. Wagner and J. Ullo	WELL DEVELOPMENT DATE: NA		SITE: Site 4-UST 110

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Concrete				
					CLAYEY SAND. 20% clay, very fine- to fine-grained sand, poor sort, moderate reddish brown to light red, dry.		SC		
					SAND. fine-grained, well sorted, pale yellowish orange mottled with dark gray, several thin layers of black greasy material at 2' bls		SP		
1									
2									
3									
4									

TITLE: NADEP Pensacola AVGAS Pipeline Area		LOG of WELL: 04G001	BORING NO. NA
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 7527.54
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 2/14/95	COMPLTD: 2/14/95
METHOD: 4.25" ID HSA	CASE SIZE: 2-inch	SCREEN INT.: 2'-12'	PROTECTION LEVEL: D
TOC ELEV.: NM FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇ 2.0 FT.
LOGGED BY: P. Wagner	WELL DEVELOPMENT DATE: 2/15/95		SITE: 4, UST 110

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1					CONCRETE		FILL		
2					FILL red sandy clay				
3							SP		
4									
5									
6					SAND fine-grained, well sorted, very pale orange, wet to saturated.				
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

APPENDIX C
LABORATORY ANALYTICAL DATA FOR SOIL

Lab Sample Number: B4J2700400
 Site NADEP
 Locator 04B00901
 Collect Date: 26-OCT-94
 VALUE QUAL UNITS DL

GC Semi-Volatiles

PCB-1016	1.1 U	mg/kg	1.1
PCB-1221	1.1 U	mg/kg	1.1
PCB-1232	1.1 U	mg/kg	1.1
PCB-1242	1.1 U	mg/kg	1.1
PCB-1248	1.1 U	mg/kg	1.1
PCB-1254	1.1 U	mg/kg	1.1
PCB-1260	1.1 U	mg/kg	1.1

GC/MS Volatiles

Acrolein	53 U	ug/kg	53
Acrylonitrile	53 U	ug/kg	53
Benzene	5.3 U	ug/kg	5.3
Bromodichloromethane	5.3 U	ug/kg	5.3
Bromoform	5.3 U	ug/kg	5.3
Bromomethane	5.3 U	ug/kg	5.3
Carbon tetrachloride	5.3 U	ug/kg	5.3
Chlorobenzene	5.3 U	ug/kg	5.3
Dibromochloromethane	5.3 U	ug/kg	5.3
Chloroethane	5.3 U	ug/kg	5.3
2-Chloroethyl vinyl ether	5.3 U	ug/kg	5.3
Chloroform	5.3 U	ug/kg	5.3
Chloromethane	5.3 U	ug/kg	5.3
1,2-Dichlorobenzene	1700 U	ug/kg	1700
1,3-Dichlorobenzene	1700 U	ug/kg	1700
1,4-Dichlorobenzene	5.3 U	ug/kg	5.3
1,1-Dichloroethane	5.3 U	ug/kg	5.3
1,2-Dichloroethane	5.3 U	ug/kg	5.3
1,1-Dichloroethene	5.3 U	ug/kg	5.3
cis-1,2-Dichloroethene	5.3 U	ug/kg	5.3
trans-1,2-Dichloroethene	5.3 U	ug/kg	5.3
1,2-Dichloropropane	5.3 U	ug/kg	5.3
cis-1,3-Dichloropropene	5.3 U	ug/kg	5.3
trans-1,3-Dichloropropene	5.3 U	ug/kg	5.3
Ethylbenzene	5.3 U	ug/kg	5.3
Trichlorofluoromethane	5.3 U	ug/kg	5.3
Methylene chloride	5.3 U	ug/kg	5.3
1,1,2,2-Tetrachloroethane	5.3 U	ug/kg	5.3
Tetrachloroethene	5.3 U	ug/kg	5.3
Toluene	5.3 U	ug/kg	5.3
1,1,1-Trichloroethane	5.3 U	ug/kg	5.3
1,1,2-Trichloroethane	5.3 U	ug/kg	5.3
Trichloroethene	5.3 U	ug/kg	5.3
Vinyl chloride	5.3 U	ug/kg	5.3
Xylenes, Total	5.3 U	ug/kg	5.3

GC/MS Semi-Volatiles

Acenaphthene	1700 U	ug/kg	1700
Acenaphthylene	1700 U	ug/kg	1700
Anthracene	1700 U	ug/kg	1700
Benzidine	9000 U	ug/kg	9000
Benzo(a)anthracene	1700 U	ug/kg	1700

Lab Sample Number: B4J2700400
 Site NADEP
 Locator 04800901
 Collect Date: 26-OCT-94

VALUE QUAL UNITS DL

Benzo(b)fluoranthene	1700 U	ug/kg	1700
Benzo(k)fluoranthene	1700 U	ug/kg	1700
Benzo(ghi)perylene	-		
Benzo(a)pyrene	1700 U	ug/kg	1700
Bis(2-chloroethoxy)methane	1700 U	ug/kg	1700
Bis(2-chloroethyl)ether	1700 U	ug/kg	1700
Bis(2-chloroisopropyl)ether	1700 U	ug/kg	1700
Bis(2-ethylhexyl)phthalate	1700 U	ug/kg	1700
4-Bromophenyl phenyl ether	1700 U	ug/kg	1700
Butyl benzyl phthalate	1700 U	ug/kg	1700
4-Chloro-3-methylphenol	1700 U	ug/kg	1700
2-Chloronaphthalene	1700 U	ug/kg	1700
2-Chlorophenol	1700 U	ug/kg	1700
4-Chlorophenyl phenyl ether	1700 U	ug/kg	1700
Chrysene	1700 U	ug/kg	1700
Dibenz(a,h)anthracene	1700 U	ug/kg	1700
Di-n-butyl phthalate	1700 U	ug/kg	1700
1,2-Dichlorobenzene	1700 U	ug/kg	1700
1,3-Dichlorobenzene	1700 U	ug/kg	1700
1,4-Dichlorobenzene	5.3 U	ug/kg	5.3
3,3'-Dichlorobenzidine	9000 U	ug/kg	9000
2,4-Dichlorophenol	1700 U	ug/kg	1700
Diethyl phthalate	1700 U	ug/kg	1700
2,4-Dimethylphenol	1700 U	ug/kg	1700
Dimethyl phthalate	1700 U	ug/kg	1700
Di-n-octyl phthalate	1700 U	ug/kg	1700
4,6-Dinitro-2-methylphenol	9000 U	ug/kg	9000
2,4-Dinitrophenol	9000 U	ug/kg	9000
2,4-Dinitrotoluene	1700 U	ug/kg	1700
2,6-Dinitrotoluene	1700 U	ug/kg	1700
Fluoranthene	1700 U	ug/kg	1700
Fluorene	1700 U	ug/kg	1700
Hexachlorobenzene	1700 U	ug/kg	1700
Hexachlorocyclopentadiene	1700 U	ug/kg	1700
Hexachloroethane	1700 U	ug/kg	1700
Indeno(1,2,3-cd)pyrene	1700 U	ug/kg	1700
Isophorone	1700 U	ug/kg	1700
Naphthalene	1700 U	ug/kg	1700
Nitrobenzene	1700 U	ug/kg	1700
2-Nitrophenol	1700 U	ug/kg	1700
4-Nitrophenol	9000 U	ug/kg	9000
N-Nitrosodimethylamine	1700 U	ug/kg	1700
N-Nitrosodi-n-propylamine	1700 U	ug/kg	1700
N-Nitrosodiphenylamine	1700 U	ug/kg	1700
Pentachlorophenol	9000 U	ug/kg	9000
Phenanthrene	1700 U	ug/kg	1700
Phenol	1700 U	ug/kg	1700
Pyrene	1700 U	ug/kg	1700
1,2,4-Trichlorobenzene	1700 U	ug/kg	1700
2,4,6-Trichlorophenol	1700 U	ug/kg	1700
Hexachlorobutadiene	1700 U	ug/kg	1700

07/21/95 NADEP AVGAS PIPELINE SITE 4 14:11:34

Lab Sample Number: B4J2700400
Site NADEP
Locator 04B00901
Collect Date: 26-OCT-94

VALUE QUAL UNITS DL

TOTAL METALS

Cadmium	.3 J	mg/kg	.5
Chromium	2.4 J	mg/kg	2.5
Arsenic	.68	mg/kg	.25
Lead	23	mg/kg	2.5

U = Not Detected J = Estimated Value

07/21/95 NADEP AVGAS PIPELINE SITE 4 08:34:07

Lab Sample Number:	B5D1400490	B5D1400490	B5D1400490	B5D1400490
SITE	NADEP	NADEP	NADEP	NADEP
Locator	04B01002	04B01102	04B01202	04B01302
Collect Date:	11-APR-95	11-APR-95	11-APR-95	11-APR-95
	VALUE	VALUE	VALUE	VALUE
	QUAL	QUAL	QUAL	QUAL
	UNITS	UNITS	UNITS	UNITS

TRPH								
Petroleum Hydrocarbons, Total	73.1	mg/kg	8.8	mg/kg	205	mg/kg	31	mg/kg
TOTAL METALS								
Cadmium	.58	mg/kg	.51	mg/kg	.52	mg/kg	.53	mg/kg
Chromium	2.9	mg/kg	2.6	mg/kg	2.6	mg/kg	2.7	mg/kg
Arsenic	.29	mg/kg	.26	mg/kg	.6	mg/kg	.27	mg/kg
Lead	2.9	mg/kg	2.6	mg/kg	3.8	mg/kg	2.7	mg/kg

U= Not Detected J= Estimated Value

APPENDIX D

LABORATORY ANALYTICAL DATA FOR GROUNDWATER

Lab Sample Number:	B5C2300570	B5A2400380
Site	NADEP AVGAS	NADEP AVGAS
Locator	04G00101	04Z00101
Collect Date:	21-MAR-95	23-JAN-95
VALUE	QUAL UNITS	DL
VALUE	QUAL UNITS	DL

GC/MS Volatiles

Acrolein	-	10 U	ug/l	10
Acrylonitrile	-	10 U	ug/l	10
Benzene	-	1 U	ug/l	1
Bromodichloromethane	-	1 U	ug/l	1
Bromoform	-	1 U	ug/l	1
Bromomethane	-	1 U	ug/l	1
Carbon tetrachloride	-	1 U	ug/l	1
Chlorobenzene	-	1 U	ug/l	1
Dibromochloromethane	-	1 U	ug/l	1
Chloroethane	-	1 U	ug/l	1
2-Chloroethyl vinyl ether	-	1 U	ug/l	1
Chloroform	-	1 U	ug/l	1
Chloromethane	-	1 U	ug/l	1
1,2-Dichlorobenzene	-	10 U	ug/l	10
1,3-Dichlorobenzene	-	1 U	ug/l	1
1,4-Dichlorobenzene	-	1 U	ug/l	1
1,1-Dichloroethane	-	1 U	ug/l	1
1,2-Dichloroethane	-	1 U	ug/l	1
1,1-Dichloroethene	-	1 U	ug/l	1
cis-1,2-Dichloroethene	-	1 U	ug/l	1
trans-1,2-Dichloroethene	-	1 U	ug/l	1
1,2-Dichloropropane	-	1 U	ug/l	1
cis-1,3-Dichloropropene	-	1 U	ug/l	1
trans-1,3-Dichloropropene	-	1 U	ug/l	1
Ethylbenzene	-	1 U	ug/l	1
Trichlorofluoromethane	-	1 U	ug/l	1
Methylene chloride	-	1 U	ug/l	1
1,1,2,2-Tetrachloroethane	-	1 U	ug/l	1
Tetrachloroethene	-	1 U	ug/l	1
Toluene	-	1 U	ug/l	1
1,1,1-Trichloroethane	-	1 U	ug/l	1
1,1,2-Trichloroethane	-	1 U	ug/l	1
Trichloroethene	-	1 U	ug/l	1
Vinyl chloride	-	1 U	ug/l	1
Xylenes, Total	-	1 U	ug/l	1

GC/MS Semi-Volatiles

Acenaphthene	-	10 U	ug/l	10
Acenaphthylene	-	10 U	ug/l	10
Anthracene	-	10 U	ug/l	10
Benzidine	-	50 U	ug/l	50
Benzo(a)anthracene	-	10 U	ug/l	10
Benzo(b)fluoranthene	-	10 U	ug/l	10
Benzo(k)fluoranthene	-	10 U	ug/l	10
Benzo(ghi)perylene	-	-		
Benzo(a)pyrene	-	10 U	ug/l	10
Bis(2-chloroethoxy)methane	-	10 U	ug/l	10
Bis(2-chloroethyl)ether	-	10 U	ug/l	10
Bis(2-chloroisopropyl)ether	-	10 U	ug/l	10
Bis(2-ethylhexyl)phthalate	-	10 U	ug/l	10
4-Bromophenyl phenyl ether	-	10 U	ug/l	10

Lab Sample Number:	B5C2300570	B5A2400380
Site	NADEP AVGAS	NADEP AVGAS
Locator	04G00101	04Z00101
Collect Date:	21-MAR-95	23-JAN-95
VALUE	QUAL UNITS	DL
VALUE	QUAL UNITS	DL

Butyl benzyl phthalate	-	10 U	ug/l	10
4-Chloro-3-methylphenol	-	10 U	ug/l	10
2-Chloronaphthalene	-	10 U	ug/l	10
2-Chlorophenol	-	10 U	ug/l	10
4-Chlorophenyl phenyl ether	-	10 U	ug/l	10
Chrysene	-	10 U	ug/l	10
Dibenz(a,h)anthracene	-	10 U	ug/l	10
Di-n-butyl phthalate	-	10 U	ug/l	10
1,2-Dichlorobenzene	-	10 U	ug/l	10
1,3-Dichlorobenzene	-	1 U	ug/l	1
1,4-Dichlorobenzene	-	1 U	ug/l	1
3,3'-Dichlorobenzidine	-	50 U	ug/l	50
2,4-Dichlorophenol	-	10 U	ug/l	10
Diethyl phthalate	-	10 U	ug/l	10
2,4-Dimethylphenol	-	10 U	ug/l	10
Dimethyl phthalate	-	10 U	ug/l	10
Di-n-octyl phthalate	-	10 U	ug/l	10
4,6-Dinitro-2-methylphenol	-	50 U	ug/l	50
2,4-Dinitrophenol	-	50 U	ug/l	50
2,4-Dinitrotoluene	-	10 U	ug/l	10
2,6-Dinitrotoluene	-	10 U	ug/l	10
Fluoranthene	-	10 U	ug/l	10
Fluorene	-	10 U	ug/l	10
Hexachlorobenzene	-	10 U	ug/l	10
Hexachlorocyclopentadiene	-	10 U	ug/l	10
Hexachloroethane	-	10 U	ug/l	10
Indeno(1,2,3-cd)pyrene	-	10 U	ug/l	10
Isophorone	-	10 U	ug/l	10
Naphthalene	-	10 U	ug/l	10
Nitrobenzene	-	10 U	ug/l	10
2-Nitrophenol	-	10 U	ug/l	10
4-Nitrophenol	-	50 U	ug/l	50
N-Nitrosodimethylamine	-	10 U	ug/l	10
N-Nitrosodi-n-propylamine	-	10 U	ug/l	10
N-Nitrosodiphenylamine	-	10 U	ug/l	10
Pentachlorophenol	-	50 U	ug/l	50
Phenanthrene	-	10 U	ug/l	10
Phenol	-	10 U	ug/l	10
Pyrene	-	10 U	ug/l	10
1,2,4-Trichlorobenzene	-	10 U	ug/l	10
2,4,6-Trichlorophenol	-	10 U	ug/l	10
Hexachlorobutadiene	-	10 U	ug/l	10

TOTAL METALS

Cadmium	5 U	ug/l	5	5 U	ug/l	5
Chromium	50 U	ug/l	50	50 U	ug/l	50
Arsenic	5 U	ug/l	5	14.9	ug/l	5
Lead	6	ug/l	5	87.8	ug/l	5

U = Not Detected J = Estimated Value